Convolvulaceae Neotropicae Novae vel Minus Cognitae, I. *Bonamia jiviorum*, a New Species from the Venezuelan Guayana

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ABSTRACT. The new species *Bonamia jiviorum* J. R. Grande (Convolvuloideae, Cresseae) is described and illustrated from northwestern Amazonas in Venezuela. This new taxon is morphologically similar to *B. apurensis* D. F. Austin. It is characterized by its relatively small, ovate-orbicular leaves that are densely rough-tomentulose over both surfaces and have a truncate to subcordate base and rounded to obtuse, mucronulate or minutely retuse apex; relatively lax, aphyllous infructescences with relatively short peduncles and relatively short, adpressed bracts; orbicular sepals; glabrous fruits crowned by copper-colored setose hairs; and densely pustulate, irregularly striate, conspicuously winged seeds. *Bonamia jiviorum* is known only from the vicinity of Puerto Ayacucho, over low-altitude granitic boulders known locally as lajas.

RESUMEN. Se describe e ilustra *Bonamia jiviorum* J. R. Grande (Convolvuloideae, Cresseae) del noroccidente del estado Amazonas de Venezuela. Esta nueva especie es morfológicamente afín a *B. apurensis* D. F. Austin y se caracteriza por presentar láminas foliares relativamente pequeñas, ovado-orbiculares, truncadas hasta subcordadas en la base, redondeadas hasta obtusas, mucronuladas ó retusas en el ápice, con pubescencia densa, áspero-tomentulosa, por ambas caras; inflorescencias áfilas, relativamente laxas, con pedúnculos relativamente cortos y brácteas adpresas relativamente cortas; sépalos orbiculares; frutos coronados por un mechón de pelos setosos cobrizos, del resto glabros; y semillas con superficie densamente pustulada e irregularmente estriada, con alas sobre las aristas laterales alcanzando los 0.2 mm de largo. *Bonamia jiviorum* sólo se conoce de los alrededores de la ciudad de Puerto Ayacucho, donde se encuentra creciendo sobre afloramientos graníticos de baja altitud conocidos localmente como lajas.

Key words: Amazonas, *Bonamia*, Convolvulaceae, Convolvuloideae, IUCN Red List, Venezuela.

According to the most recent revision (Myint & Ward, 1968), *Bonamia* Thouars (Convolvuloideae, Cresseae) contains 45 species in three sections (*Bonamia* sect. *Bonamia*, *Bonamia* sect. *Breweria* (R. Br.) Myint, and *Bonamia* sect. *Trichantha* Myint) distributed through the Old and New World tropics and subtropics. Sections *Trichantha* (13 species) and *Breweria* (seven species) are restricted to South America and Australia, respectively, whereas section *Bonamia* (25 species) is pantropical (Myint & Ward, 1968). Species in section *Bonamia* can be differentiated from those of section *Trichantha* by the seeds being glabrous rather than comose; those of section *Breweria* are distinguished by the multiflowered inflorescences (vs. simple or few-flowered) that are longer than 5 mm not including the flowers, by the corollas 1.8 cm long or more, and the leaves 3 cm long or more (Myint & Ward, 1968). Species of *Bonamia* have no economic importance, although some of them could be cultivated as ornamentals.

Many species of the genus *Bonamia* are known only from one or a few specimens from one locality or region (Myint & Ward, 1968). That characteristic, together with its apparent Gondwanan pattern of distribution (shown even in some of its more natural groups, e.g., section *Bonamia*), makes this genus, despite its apparent polyphyletic nature (Stefanović et al., 2002, 2003), an excellent study object in historical biogeography and speciation. Considering the relatively high number of species that have been described or transferred since the publication of the last comprehensive revision of the genus (Long, 1970; Austin, 1982, 1994; Austin & Staples, 1985; Johnson, 1987; McDonald, 1987; Gentry, 1988 [1989]; Breteler, 1992; Deroin, 1992 [1993], 1998, 2004), as well as other important changes in the family's classification (Stefanović et al., 2002, 2003), a new worldwide taxonomic revision of the genus should be done, in which a cladistic treatment of its species should be included. As a result of the taxonomic investigation of material deposited in some

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herbaria of Venezuela, the description of a new species in *Bonamia* sect. *Bonamia* is offered here.

Bonamia jiviorum J. R. Grande, sp. nov. TYPE: Venezuela. Amazonas: Dpto. Atures, cuenca del río Cataniapo, tramo carretera desde el Aeropuerto de Puerto Ayacucho hasta la entrada a la comun. Las Pavas, en la vía a Gavilán, SE de esta capital, 5°32′–5°40′N, 67°25′–67°36′W, 19 Feb. 1982, *F. Guanchez 1551* (holotype, VEN 363556; isotype, TFAV not seen). Figure 1.

Haec species *Bonamiae apurensi* D. F. Austin proxima, sed ab ea caule foliis (utrinque) inflorescentia sepalisque trichomatibus in sicco cupreo-ochraceis dense aspero-tomentosis, laminis foliaribus ovato-orbiculatis 3.8–5.6 cm longis 3.1–4.5 cm latis, pedunculo 2.3–4 cm longo, bracteis infructescentiae adpressis inconspicuis ex anguste triangulari deltoideis 1–3 mm longis, sepalis orbicularibus 6–6.5 mm longis 5–6 mm latis apice rotundatis, fructibus valvis plerumque glabris apice trichomatibus densis ca. 1 mm longis barbatis atque seminibus irregulariter striatis margine alatis alis rubicundis ca. 0.2 mm latis differt.

Scandent herbs, copper-ochraceous when dry; simple and bifid, recurved, 0.3–0.5 mm trichomes with tuberculate base forming a dense, rough-tomentulose pubescence over stems, leaves (both surfaces), inflorescences, and sepals; stems twining. Leaves simple, alternate; petioles 1.6–2 cm; leaf blades ovate-orbicular, slightly asymmetric, truncate to subcordate at the base, rounded to obtuse, mucronulate or minutely retuse at the apex, 3.8–5.6 × 3.1–4.5 cm, primary and secondary nerves obscure, tertiary venation not distinguishable on either surface. Inflorescences dichasial, axillary, simple or paired, known only in fructification, 4.5–5.4 × 1.5–3.5 cm (excluding fruits), relatively lax, 2× to 4× ramified; peduncles 2.3–4 cm; pedicels 0.6–1.3 cm; inflorescence bracts adpressed, inconspicuous, those subtending the primary branches narrowly triangular and ca. 3 mm, those subtending the fruits deltoid and ca. 1 mm. Flowers not seen. Calyx (in fructification) with orbicular sepals of 6–6.5 × 5–6 mm, rounded at the apex. Fruits globose, ca. 1 × 0.8 cm, 4-valved, septicidally dehiscent; valves glabrous, stramineous, with a beard of copper-colored trichomes of ca. 1 mm at the apex. Seeds one per locule, trigonous, black, ca. 4 × 3.8 mm, the surface densely pustulate and irregularly striate, the lateral edges winged; seed wings reddish, ca. 0.2 mm.

Distribution and habitat. The new species is known only from the type specimen, collected on granitic outcrops or boulders (known locally as lajas) of northwestern Amazonas State (Venezuela), in the environs of the city of Puerto Ayacucho. Based on the type collector's field notes, *Bonamia jiviorum* was a twining herb with shiny olive-green fruits, with abundant fructification in February 1982, and was frequent within open areas at the type locality.

IUCN Red List category. *Bonamia jiviorum* is assessed here as Data Deficient (DD), according to IUCN Red List criteria (IUCN, 2001). The potential range of this species, however, is subject to periodic fires and has been studied for the extraction of granite slabs (O. Huber, pers. comm.) and coltan, the so-called "blue gold" whose reserves in Venezuela could reach $100,000 million (Tillett et al., 2011).

Etymology. The epithet *jiviorum* is noteworthy for recognizing the contribution of the Jivi people in Venezuela. This is the first such instance in a plant name (IPNI, 2011). The epithet means, in the Latin, "of the Jivi." The Jivi are one of the aboriginal groups inhabiting the city of Puerto Ayacucho and the savannas of its environs, extending westward along the Meta and Arauca rivers. In the Jivi language, Jivi means "people."

Discussion. *Bonamia jiviorum* is easily distinguished from similar species by its ovate-orbicular leaves with a rounded to obtuse, mucronulate or minutely retuse apex, the densely rough-tomentulose pubescence over both leaf surfaces, obscure leaf veins (only primary and secondary distinguishable), and by its axillary, short-pedunculate inflorescences that bear inconspicuous, adpressed bracts. This new species seems to be most closely related to *B. apurensis* D. F. Austin, from which it can be distinguished by the characters listed in Table 1. In addition, the infructescences of *B. jiviorum* are aphyllous (vs. foliate) and somewhat more lax, and the seeds are somewhat smaller. According to Austin (1998), *B. apurensis* has been reported for western Venezuela and Colombia, overlapping in the eastern extreme of its distribution with the new species. One specimen labeled as *B. apurensis* (*G. Aymard & R. Thimann 713*, MO not seen, PORT), however, corresponds to *B. trichantha* Hallier f., which is the most commonly seen *Bonamia* species from western Venezuela.

Bonamia jiviorum is the only species in the genus *Bonamia* that is known to be endemic to Venezuela. It is also a characteristic element of the transitional zone between the Llanos Region (Caribbean region) and the Guaniamo–Guayapo District of the Guayana Region (Berry et al., 1995), together with *B. holtii* O'Donell, a morphologically very different species. It can be readily distinguished from other Venezuelan members of the genus (i.e., those reported in Austin [1982, 1998], and Tapia [2008]) by its ovate-

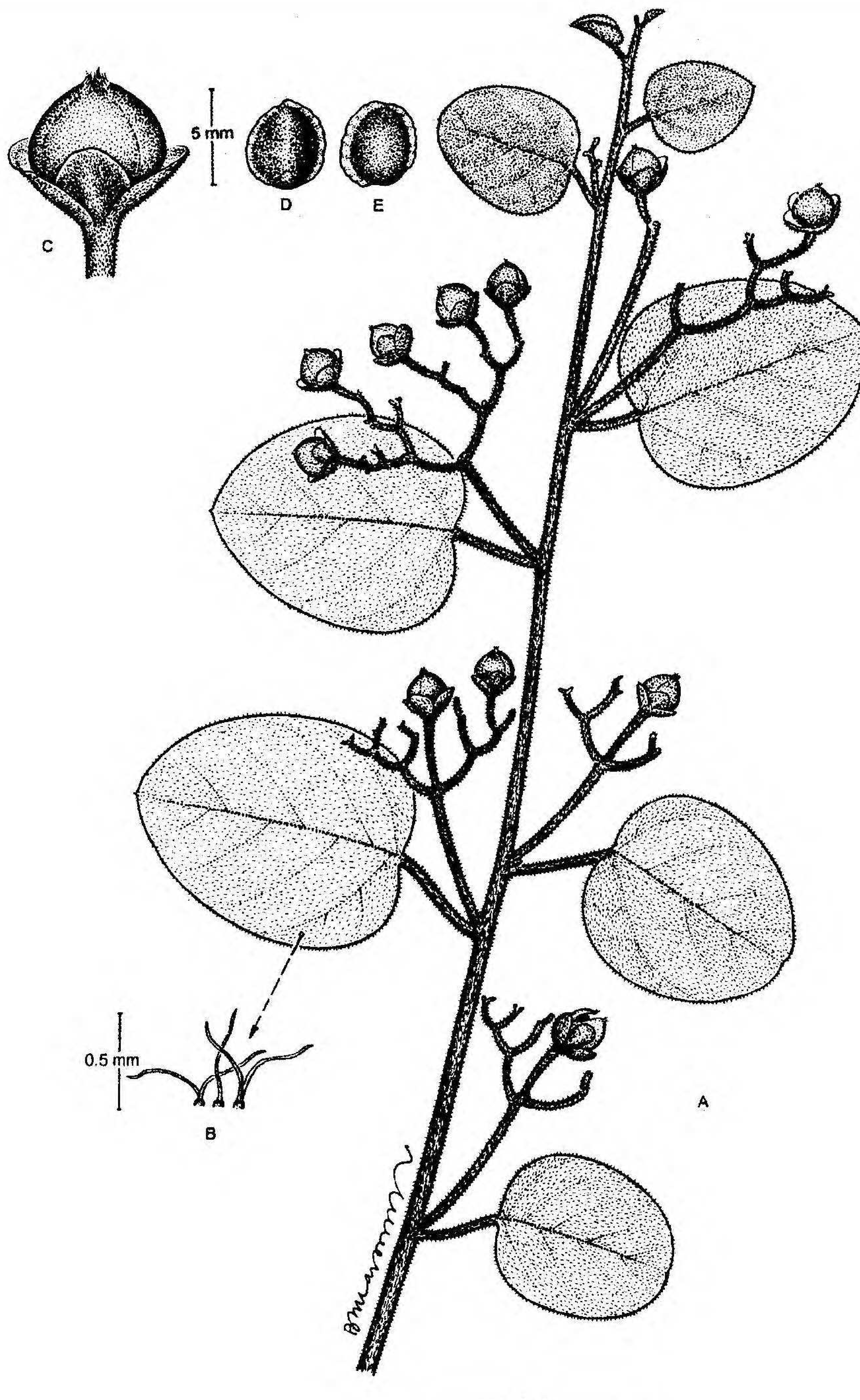


Figure 1. *Bonamia jiviorum* J. R. Grande. —A. Plant. —B. Plant trichomes. —C. Fruit. —D. Seed, ventral surface. —E. Seed, dorsal surface. A–E drawn from the holotype, *Guanchez 1551* (VEN).

orbicular leaves densely covered with a rough-tomentulose pubescence over both surfaces. Despite the lack of flowers in the available material, this new species is attributable to *Bonamia* based on its bifid trichomes (Hallier, 1893; Myint & Ward, 1968); the 4-valved, septicidally dehiscent, 4-seeded (one seed per locule) fruits; and its strong resemblance to other species in the genus, especially *B. apurensis*.

Table 1. Morphological differences between *Bonamia apurensis* and *B. jiviorum.*

	B. apurensis	*B. jiviorum*
Coloration of pubescence in dried material	bronze	copper-ochraceous
Leaf blades	ovate to ovate-cordate, 6–14 × 3–10.5 cm	ovate-orbicular, 3.8–5.6 × 3.1–4.5 cm
Leaf blade apices	obtuse to acute, mucronulate	rounded to obtuse, mucronulate or minutely retuse
Pubescence of the adaxial surface of leaf blades	sparsely pubescent, concentrated toward base of primary and secondary veins	rough-tomentulose all over
Peduncles	5.1–15.2 cm	2.3–4 cm
Inflorescence bracts (in fructification)	ligulate to ligulate-spatulate, patent, 2.8–5 mm long	deltoid to narrowly triangular, adpressed, 1–3 mm long
Sepals	ovate, apex acute	orbicular, apex rounded
Pubescence of fruits	along margins and midvein of carpels, more conspicuously so at the apex	restricted to the apex
Seeds	seed surface slightly pustulate, smooth; seed wings < 0.1 mm	seed surface pustulate, striate; seed wings ca. 0.2 mm

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